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Western Alternatives to Soviet Natural Gas: Prospects and Implications

Special National Intelligence Estimate

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SNIE 3/11-82
28 May 1982

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WESTERN ALTERNATIVES TO SOVIET NATURAL GAS: PROSPECTS AND IMPLICATIONS

Information available as of 27 May 1982 was used in the preparation of this Estimate.

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THIS ESTIMATE IS ISSUED BY THE DIRECTOR OF CENTRAL INTELLIGENCE.

THE NATIONAL FOREIGN INTELLIGENCE BOARD CONCURS.

The following intelligence organizations participated in the preparation of the Estimate:

The Central Intelligence Agency, the Defense Intelligence Agency, the National Security Agency, and the intelligence organizations of the Departments of State and Energy.

Also Participating:

The Assistant Chief of Staff for Intelligence, Department of the Army

The Director of Naval Intelligence, Department of the Navy

The Assistant Chief of Staff, Intelligence, Department of the Air Force

The Director of Intelligence, Headquarters, Marine Corps

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KEY JUDGMENTS

The USSR's great need for hard currency and its massive natural gas reserves give Moscow a strong incentive to offer cheap gas to Western Europe and, to a lesser extent, to Japan. The Europeans and the Japanese, for their part, are attracted by the low Soviet prices, as well as by the diversification of their energy supply sources away from Middle East oil that is entailed in buying Soviet gas. The Europeans claim that present and anticipated dependence on Soviet gas does not involve serious risk, and potential Japanese dependence is minimal. The problem is that Moscow will try to sell even larger amounts of gas in the 1990s to relieve its hard currency problem.

US actions to encourage development of Western alternatives to Soviet natural gas can help to limit the volume of gas exported to Western Europe and to reduce the possibility of additional purchases of Soviet gas in the longer term.

Under agreements already signed or likely to be signed soon, the USSR will increase its gas exports to Western Europe to the oil equivalent of more than 900,000 barrels a day by the late 1980s. This would be equivalent to about 25 percent of West European gas consumption, including 25 to 50 percent in those countries (West Germany, France, Italy, Austria, and possibly Belgium) that would be buying Soviet gas. It would represent about 3 percent of total West European energy consumption. Gas exports, about one-half from the Siberian pipeline, would yield the USSR around $10 billion a year in hard currency after 1990, when the loans would have been repaid. If West European demand for Soviet gas falls below the levels established in the new contracts, purchases can be cut by as much as 20 percent, which would reduce Soviet hard currency earnings by up to $1 billion a year.

The development of alternative Western energy sources—particularly the large gas resources of the North Sea—will take too long to have much effect on the West European demand for Soviet gas in the 1980s but could determine whether or not Western Europe seeks additional Soviet gas in the 1990s. Although, at best, an additional 150,000 to 250,000 b/d oil equivalent of new supplies could be delivered by 1990 through increased Dutch and Norwegian production, estimated Norwegian gas reserves are sufficient to permit a large expansion of production in the 1990s.

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However, if these reserves are going to be available at a reasonable cost, steps must be taken soon to encourage and stimulate their development. Western governments would have to make major decisions on field development, distribution systems, and pricing. While most projects will proceed on the basis of commercial merit, existing government development policies in Norway, the United Kingdom, and the Netherlands will have to be altered to permit a sizable increase in gas flows before the early 1990s. Favorable tax policies and some type of interest rate subsidy would also speed development and lower the cost of delivered gas from remote fields requiring high capital investments. With the exception of increased coal use, most other alternatives available to Western Europe are now viewed as too costly or potentially insecure.

If the Soviets sell all of their share of LNG and most of their share of oil from the planned Sakhalin development project, Japan could receive by the early 1990s up to 60,000 b/d of oil and 75,000 b/d of oil equivalent as liquefied natural gas (LNG). The USSR would earn some $1 billion a year in hard currency. Japan's dependence on Soviet gas would be small, and Japan could easily forgo the proposed volume of LNG from the Sakhalin project. Alternative supplies from several sources are expected to become available, and there is growing concern that contracted supplies may already exceed demand in the Japanese market.

Although no additional purchases of Soviet gas beyond those already contracted for have been discussed—or, according to some European governments, are intended—continued expansion of gas exports to the West is extremely important to Moscow. The USSR's hard currency earnings are likely to stagnate or decline in the 1980s even if Western Europe imports the full contracted amounts of Soviet gas. Reduced West European purchases would make a decline in Soviet import capacity even more likely. Although the USSR could develop other exports by the 1990s, none look anywhere near as promising or profitable as gas exports. Consequently, the absence of large new deals for Soviet gas would probably significantly restrict Moscow's access to Western equipment and technology in the long term and make Soviet policy decisions for military programs more painful.

As West European imports of gas from the USSR increase, so will European dependence. Nevertheless, the extent to which this increased dependence can be translated by Moscow into meaningful leverage over European policies is uncertain. Although Moscow has cut off (or manipulated) energy exports to other countries in the past and could

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certainly do the same in the future, to do so would mean forgoing badly needed foreign exchange earnings.

At the very least, the Siberian gas pipeline deal will enhance Moscow's ability to influence the West Europeans on issues which the latter see as peripheral to their own security interests. Moscow will be able to dampen enthusiasm for economic sanctions sponsored by the United States in retribution for Soviet actions elsewhere. The USSR has already threatened Western Europe with the loss of energy and other projects if it joined in either the Afghanistan- or Poland-related sanctions. The Soviets must tread lightly in the 1980s so as not to alienate their European customers in ways that would motivate them to develop alternative supplies. In the 1990s, however, if the Soviet–West European gas relationship were substantially expanded, it would give Moscow even more clout on questions of this sort.

European vulnerability to interruptions of Soviet gas supplies could be mitigated by development of emergency gas reserves, gas grid flexibility, a capacity to quickly increase gas production, and a capability to switch to alternative fuels. As dependence on Soviet gas continues to increase, however, building a safety net adequate to prevent substantial economic disruptions if Soviet gas supplies were cut off will become very difficult and costly.

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DISCUSSION

1. Meeting West European and Japanese energy needs from non-Soviet sources for the rest of this century will require major cooperative efforts by Western governments to make available natural gas, liquefied natural gas (LNG), and coal at prices competitive with Soviet supplies.

2. Although West European demand for gas has softened in recent years, the falloff is expected to bottom out this year and demand to revive as economic recovery begins:

— We estimate that demand for gas in Western Europe will increase from about 3.6 million barrels a day in oil equivalent in 1980 to about 4.1 million b/d in 1990 and to 4.5-5.0 million b/d by the year 2000.[1]

— As domestic West European supplies of gas are depleted or shut in, the import dependence of the region will rise—from 13 percent currently to about 50 percent by the turn of the century. West European industry will come to rely on gas for about one-fourth of its energy needs, and the residential sector will be even more dependent on gas.

— The West Europeans have often stated the desire to diversify energy sources and have sought to replace Middle East oil with gas.

3. Japan's demand for gas is expected to grow more rapidly than its demand for any other major fuel in the 1980s. By 1990 Japan's gas consumption could reach 1.2 million b/d oil equivalent—up from 0.4 million b/d in 1980. Japanese dependence on Sakhalin oil and LNG would raise Moscow's share of Japan's energy market from almost nothing to about 1 percent in the 1990s; the share of gas requirements could reach 6 percent.

[1] Each 1 million b/d oil equivalent is equal to 164 million cubic meters per day of natural gas or 60 billion cubic meters per year.

Soviet Place in European Market

4. The Soviet Union has been delivering gas to Western Europe since the early 1970s. Contracts currently in operation call for the delivery of about 430,000 b/d oil equivalent in natural gas supplies to Western Europe. The gas is delivered principally from the Orenburg field through a pipeline system that enters Eastern Europe from Uzhgorod, and branches in Czechoslovakia to northern and southern Europe. The Soviets have the capability of expanding flows through the existing pipeline system by 10 to 15 percent if necessary.

5. Moscow began discussing additional sales to Western Europe in 1978, with initial discussions centering on the delivery of about 670,000 b/d oil equivalent of natural gas by 1984 from a new pipeline to be built from Siberia. Construction of a dual-line system capable of delivering 850,000 to 1 million b/d oil equivalent was envisioned, with the spare capacity being available for Eastern Europe or future West European sales. Softening West European demand, however, caused a reduction in the amount the Soviets could sell initially, and Moscow opted to construct a single-line system with a capacity of about 530,000 b/d oil equivalent. The Soviets retain the capability of expanding to a dual system by laying a second pipeline and adding compressors.

6. At present, the Soviets have signed additional contracts for only about 330,000 b/d oil equivalent with France, West Germany, and Austria. Each country has the option to take only 80 percent of contracted volume each year. Italy, Belgium, the Netherlands, and Spain are potential customers for about 150,000 to 200,000 b/d oil equivalent. Italy is a likely customer, Belgium might take some, but Spain and the Netherlands are unlikely recipients. If together they took 150,000 b/d oil equivalent, the grand total of Soviet gas being imported into Western Europe by the

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late 1980s would be more than 900,000 b/d oil equivalent. The West European countries as a group will depend on the USSR for about 25 percent of their gas requirements and about 3 percent of total energy requirements.

7. Soviet sales above and beyond the volumes currently being negotiated will depend on the strength of European demand. With demand increasing and domestic production expected to fall in the United Kingdom and France, the decision by the Netherlands not to renew present contracts for gas exports confronts other West Europeans with a widening gas supply gap. If the Soviets are successful in capturing a large enough share, construction of a parallel export pipeline may be undertaken. Smaller volumes of gas sales probably could be met by increasing flows through other systems. If no Western energy supply alternative is forthcoming and a new round of contracts is negotiated with the Soviet Union, West European dependence on Soviet gas could approach 35 percent by the late 1990s.

8. Moscow and the West Europeans are not currently engaged in any discussions regarding gas deliveries beyond those covered by contracts already signed or negotiated, but a Soviet initiative to line up large additional gas sales to Western Europe in the late 1980s or early 1990s is probable. Moscow probably would come to the West Europeans for another round of gas delivery contracts even if Western credits were not available to finance a second pipeline. Even without another export pipeline, some additional gas deliveries to Western Europe could be made through existing or additional pipelines from the Urengoy field in Siberia to the export terminal at Uzhgorod. The bottom line will be determined by West European demand (see appended foldout charts). If West European utilities agree to buy more gas from the Soviet Union, Moscow will probably lay enough pipe to accommodate new contracts.

9. To stabilize or reduce Moscow's share of the gas market in the 1990s, Western governments will have to make major policy decisions on gasfield development and distribution schemes (including possible subsidized pricing arrangements) within the next few years. As the West Europeans review their gas supply options in the next two to three years, a window of opportunity will exist during which they could launch projects that would diminish the need for additional purchases of Soviet gas in the 1990s.

10. Maximizing non-Soviet supplies will depend largely on Western Europe's assessments of the relative costs of alternative gas supplies. Moscow views gas exports as its best chance of earning additional hard currency in the 1980s and 1990s and will offer prices and supply guarantees that will be highly competitive with alternative sources of gas for Western Europe and Japan. To develop alternatives to Soviet gas, ways will have to be found to finance new development on favorable terms or to encourage consuming countries to accept higher prices for gas from non-Soviet sources than for Soviet gas.

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Soviet Motivations

36. Any plan to slow or stop the increase of West European or Japanese dependence on Soviet gas in the 1990s must recognize that the USSR has an enormous interest in expanding its sales.

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Economic

37. Under current Soviet–West European gas contracts Moscow will realize net hard currency earnings of $15-20 billion (1981 prices) from the single Siberia–to–Western Europe pipeline between 1984 and 1990. Beyond 1990, hard currency earnings from this pipeline would be about $4-5 billion per year.

38. The factors that led the Soviets to conclude the recent Siberian gas deal—huge gas reserves and continued need for hard currency earnings—almost certainly will lead to a proposal for new export contracts that would require a second export pipeline. If the proposal were accepted, Soviet revenues from Siberian gas would roughly double in the 1990s to $8-10 billion per year. Soviet behavior in negotiating the first contracts suggests that additional gas supplies would be offered at a base price near the low end of the market. By accepting a relatively low price initially, the Soviets would increase their market penetration and still secure hard currency earnings. This would partially counteract an expected falloff in earnings as a result of declining oil exports in the 1990s. If future gas prices were also linked to oil prices, the Soviets could expect to increase earnings substantially over the ensuing years of long-term gas contracts.

Political

39. Moscow probably sees growing penetration of West European and Japanese gas markets as giving it increased influence over political behavior in these countries.

40. Although the Soviets would be reluctant to threaten a gas cutoff because of their growing need for hard currency, they could use gas exports more subtly in influencing West European decisionmaking on selected East-West issues. Technical breakdowns in pipeline operation—which will occur periodically in any event because of weather conditions and poor Soviet maintenance—could be used, for example, to heighten West European awareness of the potential economic costs arising from policy decisions harmful to Soviet interests. The Soviets conceivably could exacerbate European differences with the United States over future economic sanctions against the USSR or even over more sensitive issues such as NATO force modernization.

41. Moscow's influence over West European behavior began as soon as gas delivery contracts were signed. With heavy up-front financial commitments, West European countries would be hesitant to alienate their future supplier. The more progress there is toward additional gas deliveries from the USSR, the less West European interest there will be in a cooperative Western alternative.

42. At the very least, the gas line deal will enhance the USSR's ability to influence the West Europeans on issues which the latter see as peripheral to their own security interests. Moscow will be able to dampen enthusiasm for economic sanctions sponsored by the United States in retaliation for Soviet actions elsewhere. The USSR already has threatened Western Europe with the loss of energy and other projects if it joined in either the Afghanistan- or Poland-related sanctions. The Soviets must tread lightly in the 1980s so as not to alienate their European customers in ways that would motivate them to develop alternative supplies. In the 1990s, however, if the Soviet–West European gas relationship were substantially expanded, it would give Moscow even more clout on questions of this sort.

East European Requirements

43. The export gas pipeline(s) also could help the USSR in dealing with East European energy requirements. Moscow has cut back on oil deliveries to East European states in recent months. A gas pipeline or two through Eastern Europe would enable the Soviets to provide additional energy to these countries (or divert gas destined for Western Europe should Moscow be so inclined). This would encourage Eastern Europe to step up programs for substituting gas for oil.

Limited Gains From Sakhalin

44. Soviet gains from the Sakhalin project would be less than from the Siberia–to–Western Europe pipeline, both economically and politically. Hard currency earnings from sales of Sakhalin oil and gas would net Moscow about $20 billion (1981 prices) over the 20-year life of the project. This estimate assumes production will come from the Chaivo and Odoptu fields. Oil production at the two fields will peak at 80,000 to 90,000 b/d in the mid-1990s, with average output on

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the order of 60,000 b/d. LNG production of 3 million metric tons per year is projected. SODECO has estimated that, by the end of 1981, recoverable reserves of the two fields totaled 300 million barrels of oil and 95 million barrels of gas condensate.

45. In April 1982, Moscow and SODECO agreed to delay the start of production by at least 15 months. Drilling from the first of four production platforms in the Chaivo field now is scheduled to begin by December 1986. Recent reports also indicate that SODECO's inability to obtain $2 million in drilling parts and services from US firms could jeopardize the entire 1982 exploration drilling season on a second structure, the Odoptu field. Because of harsh weather conditions, exploration drilling from existing platforms is limited to the June-October period. Delays caused by the US embargo could push the exploration phase into 1984. If the Chaivo example is used as a prototype, production at Odoptu could begin four to six years after the completion of exploration, or in the 1988-90 time frame at the earliest.

46. The Soviets could gain little direct influence in Japan through Sakhalin gas deliveries because the share of Soviet gas in Japan's energy consumption is likely to remain small and because Japan's requirements probably could be satisfied from other sources—Indonesia, Brunei, Malaysia, Australia, Thailand, Canada, Alaska, Abu Dhabi, and Qatar.

Western Countermoves

47. The Europeans have a number of options available to reduce their vulnerability to a Soviet gas cutoff. Purchasers of Soviet gas are already planning to expand gas storage capacity by more than 50 percent to 31 billion cubic meters. Development of additional gas reserves in the North Sea and elsewhere in Western Europe could provide these countries with some ability to increase production quickly in the event of a shortfall in gas imports. Gas utilities can also ensure that transmission facilities have the flexibility to reverse flows in pipelines and increase gas throughput in the event of an emergency. In addition, some governments are requiring gas-using industries and electric power plants to develop a dual-fired capability. The present capability to switch to alternative fuels represents roughly 15 percent of West European gas sales.

48. The development of alternative energy sources for Western Europe and Japan would reduce Moscow's potential economic and political gains from the export of gas and could bring additional pressure on Soviet leaders to modify existing policies. Without the additional hard currency from the West European and Japanese gas markets, Moscow will face the prospect of having to curtail hard currency expenditures.

49. The need to cut hard currency expenditures would force Moscow to reappraise its spending priorities. There would be growing pressure from various institutional interests to spread the burden of hard currency shortages widely, including cuts in Western imports. The tautness of the economy virtually assures that sizable import cuts in almost any industry would have adverse repercussions in other areas:

- Imports of Western machinery are equal to about 10 percent of Soviet capital investment in equipment.
- Imports of oil and gas equipment could make a difference of 2-3 million barrels per day in oil-equivalent production in the middle and late 1980s. The larger part of this would be gas.
- Hard currency shortfalls could also impinge on industry that supports production of military hardware.
- In addition, such programs as aid to Eastern Europe, Cuba, or Third World countries, which directly or indirectly use foreign currency, would encounter greater difficulties.

The trade-offs among major hard currency programs in the USSR would not be easily resolved, particularly if the issues become politicized during postsuccession maneuvering.

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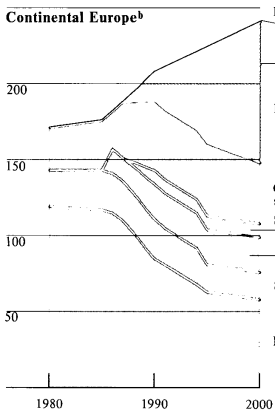
Natural Gas Supply and Demand[a]

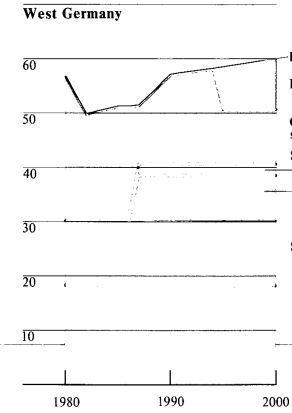
Supply and Demand Forecast

Billion cubic meters

Continental Europe[b]



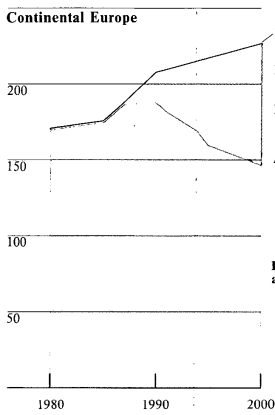
West Germany



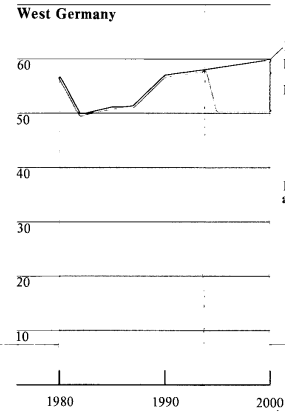
Potential New Gas Supplies

Billion cubic meters

Continental Europe



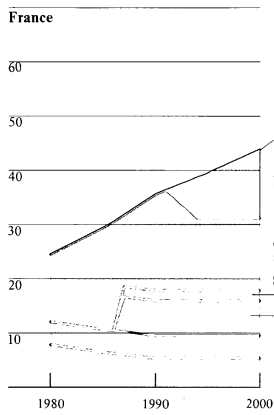
West Germany



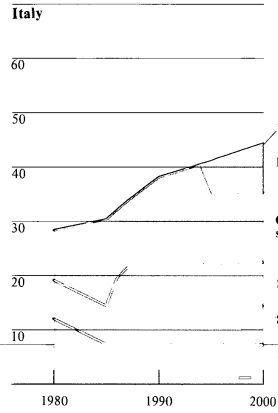
Supply and Demand Forecast

Billion cubic meters

France



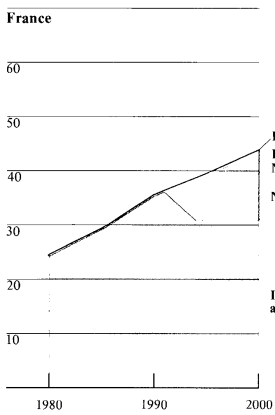
Italy



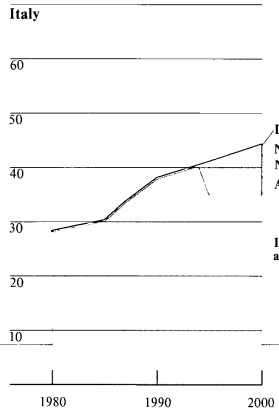
Potential New Gas Supplies

Billion cubic meters

France



Italy



[a] In some years in the 1980s, available gas supplies under existing contracts may exceed demand. In those years, some countries will accept deliveries of less than full contracted volume.

[b] Western Europe excluding the United Kingdom.

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